

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently amended) A method for facilitating instant failover during
2 packet routing by employing a flooding protocol to send packets between a source
3 and a destination, the method comprising:
4 receiving a packet containing data at an intermediate node located between
5 | the source and the destination, wherein the packet is a data packet that is enroute
6 | from the source to the destination;
7 wherein the packet is received from a first neighboring node;
8 determining whether the packet has been seen before at the intermediate
9 node; and
10 if the packet has not been seen before, forwarding the packet to
11 neighboring nodes of the intermediate node.
- 1 2. (Original) The method of claim 1, wherein forwarding the packet to
2 neighboring nodes involves forwarding the packet to all neighboring nodes except
3 the first neighboring node from which the packet was received.
- 1 3. (Original) The method of claim 1, wherein determining whether the
2 packet has been seen before involves examining a sequence number, S_R , contained
3 within the packet to determine whether the sequence number has been seen
4 before.

1 4. (Original) The method of claim 3, wherein the sequence number
2 includes one of:
3 a sequence number inserted into a payload of the packet;
4 a sequence number located within an Internet Protocol (IP) header of the
5 packet; and
6 a sequence number located within a layer 4 header of the packet.

1 5. (Original) The method of claim 3, wherein examining the sequence
2 number involves looking up a highest received sequence number, S_H , stored at the
3 intermediate node based upon the source of the packet.

1 6. (Original) The method of claim 3, wherein examining the sequence
2 number involves looking up a highest received sequence number, S_H , stored at the
3 intermediate node based upon the source and the destination of the packet.

1 7. (Original) The method of claim 3, wherein determining whether the
2 packet has been seen before involves examining a record, R , indicating which of N
3 possible sequence numbers preceding a highest received sequence number, S_H ,
4 have been seen before.

1 8. (Original) The method of claim 3, wherein determining whether the
2 packet has been seen before involves:
3 looking up a highest received sequence number, S_H ;
4 if $S_R > S_H$,
5 overwriting S_H with S_R ,
6 updating a record, R , indicating which of N possible
7 sequence numbers preceding S_H have been seen before, and
8 forwarding the packet to the neighboring nodes;

9 if $S_H - N > S_R$, discarding the packet; and
10 if $S_H \geq S_R \geq S_H - N$, then
11 if R indicates that S_R has been seen before, discarding the
12 packet, and
13 if R indicates the packet has not been seen before,
14 updating R to indicate that S_R has been seen,
15 and
16 forwarding the packet to the neighboring
17 nodes.

1 9. (Original) The method of claim 8, wherein the record, R , is a bit vector
2 of size N .

1 10. (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for facilitating instant failover during packet routing by employing a
4 flooding protocol to send packets between a source and a destination, the method
5 comprising:
6 receiving a packet containing data at an intermediate node located between
7 the source and the destination, wherein the packet is a data packet that is enroute
8 from the source to the destination;
9 wherein the packet is received from a first neighboring node;
10 determining whether the packet has been seen before at the intermediate
11 node; and
12 if the packet has not been seen before, forwarding the packet to
13 neighboring nodes of the intermediate node.

1 11. (Original) The computer-readable storage medium of claim 10,
2 wherein forwarding the packet to neighboring needs involves forwarding the
3 packet to all neighboring nodes except the first neighboring node from which the
4 packet was received.

1 12. (Original) The computer-readable storage medium of claim 10,
2 wherein determining whether the packet has been seen before involves examining
3 a sequence number, S_R , contained within the packet to determine whether the
4 sequence number has been seen before.

1 13. (Original) The computer-readable storage medium of claim 12,
2 wherein the sequence number includes one of:
3 a sequence number inserted into a payload of the packet;
4 a sequence number located within an Internet Protocol (IP) header of the
5 packet; and
6 a sequence number located within a layer 4 header of the packet.

1 14. (Original) The computer-readable storage medium of claim 12,
2 wherein examining the sequence number involves looking up a highest received
3 sequence number, S_H , stored at the intermediate node based upon the source of the
4 packet.

1 15. (Original) The computer-readable storage medium of claim 12,
2 wherein examining the sequence number involves looking up a highest received
3 sequence number, S_H , stored at the intermediate node based upon the source and
4 the destination of the packet.

1 16. (Original) The computer-readable storage medium of claim 12,
2 wherein determining whether the packet has been seen before involves examining
3 a record, R , indicating which of N possible sequence numbers preceding a highest
4 received sequence number, S_H , have been seen before.

1 17. (Original) The computer-readable storage medium of claim 12,
2 wherein determining whether the packet has been seen before involves:
3 looking up a highest received sequence number, S_H ;
4 if $S_R > S_H$,
5 overwriting S_H with S_R ,
6 updating a record, R , indicating which of N possible
7 sequence numbers preceding S_H have been seen before, and
8 forwarding the packet to the neighboring nodes;
9 if $S_H - N > S_R$, discarding the packet; and
10 if $S_H \geq S_R \geq S_H - N$, then
11 if R indicates that S_R has been seen before, discarding the
12 packet, and
13 if R indicates the packet has not been seen before,
14 updating R to indicate that S_R has been seen,
15 and
16 forwarding the packet to the neighboring
17 nodes.

1 18. (Original) The computer-readable storage medium of claim 17,
2 wherein the record, R , is a bit vector of size N .

1 19. (Currently amended) An apparatus that facilitates instant failover
2 during packet routing by employing a flooding protocol to send packets between a
3 source and a destination, the apparatus comprising:
4 a receiving mechanism that is configured to receive a packet containing
5 data at an intermediate node located between the source and the destination,
6 wherein the packet is a data packet that is enroute from the source to the
7 destination;
8 wherein the packet is received from a first neighboring node;
9 a determination mechanism that is configured to determine whether the
10 packet has been seen before at the intermediate node; and
11 a forwarding mechanism that is configured to forward the packet to
12 neighboring nodes of the intermediate node if the packet has not been seen before.

1 20. (Original) The apparatus of claim 19, wherein the forwarding
2 mechanism is configured to forward the packet to all neighboring nodes except
3 the first neighboring node from which the packet was received.

1 21. (Original) The apparatus of claim 19, wherein the determination
2 mechanism is configured to examine a sequence number, S_R , contained within the
3 packet to determine whether the sequence number has been seen before.

1 22. (Original) The apparatus of claim 21, wherein the sequence number
2 includes one of:
3 a sequence number inserted into a payload of the packet;
4 a sequence number located within an Internet Protocol (IP) header of the
5 packet; and
6 a sequence number located within a layer 4 header of the packet.

1 23. (Original) The apparatus of claim 21, wherein the determination
2 mechanism is configured to look up a highest received sequence number, S_H ,
3 stored at the intermediate node based upon the source of the packet.

1 24. (Original) The apparatus of claim 21, wherein the determination
2 mechanism is configured to look up a highest received sequence number, S_H ,
3 stored at the intermediate node based upon the source and the destination of the
4 packet.

1 25. (Original) The apparatus of claim 21, wherein the determination
2 mechanism is configured to examine a record, R , indicating which of N possible
3 sequence numbers preceding a highest received sequence number, S_H , have been
4 seen before.

1 26. (Original) The apparatus of claim 21, wherein the determination
2 mechanism is configured to:
3 look up a highest received sequence number, S_H ;
4 if $S_R > S_H$, to
5 overwrite S_H with S_R ,
6 update a record, R , indicating which of N possible sequence
7 numbers preceding S_H have been seen before, and to
8 forward the packet to the neighboring nodes;
9 if $S_H - N > S_R$, to discard the packet; and
10 if $S_H \geq S_R \geq S_H - N$, to
11 discard the packet, if R indicates that S_R has been seen
12 before, and to

13 update R to indicate that S_R has been seen, and to forward
14 the packet to the neighboring nodes, if R indicates the packet has
15 not been seen before.

1 27. (Original) The apparatus of claim 26, wherein the record, R , is a bit
2 vector of size N .